

MEMMORANDUM FOR: GOES Data Collection System (DCS) Users

FROM: Kay Metcalf
GOES DCS Program Manager

SUBJECT: Minutes of the 99th GOES DCS Technical Working Group Meeting, February 26, 2003.

I. Opening Remarks – Kay Metcalf, DCS Program Manager (NESDIS/DSD)

The 99th meeting of the DCS Technical Working Group (TWG) was called to order at 9:00 a.m. at the Ramada Inn, Virginia Beach, Virginia on Wednesday, February 26, 2003. Kay opened the meeting with a welcome to all of the more than 50 people who were there. She mentioned that the next meeting of the TWG would be the 100th and suggested something special should be planned. Kay next reviewed the meeting agenda, and reminded all of the GOES-R planning meeting that was scheduled for the following day, and that was open for all to attend. Kay then requested that all should introduce themselves. There were DCS users, government managers and support staff, and DCS equipment vendors attending.

Kay introduced Roger Heymann of the NESDIS Advanced Engineering group who explained what his responsibilities were, and the reason that advance planning personnel were there. Roger said that as a result of the recent Miami Americas User Conference, NESDIS planners realized the criticality of the DCS and that there was a need to collect information on their requirements. He stressed the need for the TWG to work outside of their community, for instance with the advanced planning group. He said that the intention was to gather data at the next day's meeting that they could take back with them for analysis. The information that is collected will be used primarily planning GOES-R requirements.

II. Satellite Telemetry Interagency Working Group (STIWG) Report – Jim Doty.

Jim Doty of the USBR in Boise, who is the current STIWG Chair, presented the report on their previous day's meeting. He related that he is the new chair, and that Ernest Dreyer of the USGS/WRD is the secretary, while Doc Carver remains the treasurer. The STIWG has sufficient funds now to cover the Domsat through 2005. They plan to vote on the Terms of Reference draft at the next meeting. He reviewed a presentation that Kay had made on a study that NESDIS is doing on backup GOES DCS data reception and distribution facility. The study is to be completed this year. The recent hacking incident at the Wallops CDA has resulted in a change from using a NASA network to a NOAA communications link now. There is a desire to continue the Wallops LRGS connection into the DAPS II era, and a study will be conducted to see how best to do this. The need

for completing the survey questionnaire was emphasized. Kay emphasized the need for user participation in the survey to facilitate the high data rate (HDR) transition plan. Kolleen Shelly reported on a draft of the HDR transition plan. She stressed the need for more participation by users to complete the survey. She said that the clock is ticking and a total HDR system is now set for 2013. All of the 100 bps channels are to be migrated to a partition which is below channel #100. Therefore, she requested users to begin clearing out their 100 bps assignments that are above channel #100. Users were invited to email Kolleen for information. A goal was set for more participation in the GOES planning survey by March 15, with finalization by May 1st of this year. The survey URL is <http://water.usgs.gov/datarelay/stiwg/survey>. She also stressed the need for user input in determining requirements for future satellites

III. NESDIS Report/DAPS II - Al McMath (Wallops CDA)

Al Mcmath reported that there had been an increase in DCS data activity which probably was due to easier data dissemination without using telephone connections. A brief history of the old DAPS Data General System was presented, followed by a review of the DAPS II development which began in 1999. The current schedule calls for a July 2003 delivery date of the DAPS II to the Wallops CDA, and a September/October time frame for having the new DAPS II operational. It is planned to have DAPS and DAPS II running as parallel systems for about 90 days, including a 30 day acceptance test period. It was mentioned that the documentation which is needed for users to learn how to use the system has not been provided to NESDIS yet. It was pointed out that DAPS II is a GUI based system. Kay added that the DAPS II method of assigning channels will involve user interaction using one of the GUI screens, followed by an email that verifies whether they have the slot that they have requested. There was much discussion on the new DAPS II method of channel/time slot assignment. There was also a user request to allow parallel DAPS/DAPS II operation beyond the 60 days that is currently planned (30 days acceptance test and 60 days parallel operation).

There was common agreement among the users that there existed a strong need for user access to DAPS II system documentation in order to modify their own system procedures well ahead of the system delivery. They want the documentation at least 60 days prior to the operational DAPS II. It was agreed that ISI must deliver the documentation prior to the acceptance test phase. Thus the users then would have access to the manuals at least for that period plus the 60 day parallel operation, which would be 90 days prior to full DAPS II operation. The concept of "master user" for DAPS II was introduced, and a brief description given in which an agency would be the master user, and each person associated would set up his or her own user account as a subset of the master user.

A discussion of time stamping with DAPS II ensued, and there seemed to be a consensus that the time stamping should occur at the front-end, that is at the RF (demod) segment. The question of certification was reintroduced. There is an urgent need for specifications including demodulator specifications for the GOES-R era. All of the GOES-R specifications need to be completed within the next two years. Peter Woolner, who is a consulting RF engineer for NESDIS, has a list of other unspecified parameters, such as a raised cosine filter requirement for the demodulator design that he would like to resolve in a future meeting that would be attended by vendors.

Users were reminded that the current procedure for getting assignments is to apply at Goes.dcs@noaa.gov and not by email to Kay. The new IP address for Wallops was presented to the users as 205.156.2.173. NESDIS has moved the DCS Internet service from the previous NASA link to a NOAA hosted service. The new IP address should be used by the end of March 2003. Wallops will have a new Checkpoint firewall by March 19th which will be used until DAPS II is operational. The following URLs were given for users who want to get the Wallops LRGS data: <http://drot.wcda.noaa.gov/> for down linked data and <http://cdadata.wcda.noaa.gov/> for users who missed their Domsat data. The Wallops hacker incident was elaborated on. There were some data losses due to the incident. Hackers were able to break into the Wallops Linux based system. Wallops has increased their security since then, and there have been no further problems. A new Wallops telephone number was given for operational support: 757-824-7450.

IV. DCS High Data Rate Demodulator Status - Phil Whaley (Wallops CDA)

It was reported that the 1200 bps demods have been working well, and that timing issues with 300 bps demods are being resolved. Illegal character problems that were paralyzing the DAPS have been corrected with a change to the demod firmware. The issue of DCS user problem reporting, and problem analysis was discussed. A highlight was that DAPS has been running for extended periods of time without any internal problems. It was reported that determining the source of user problems is a time consuming process for the Wallops' personnel due to the way that the current DAPS reports are accessed. Users said that they would like to see a trouble tracking system as part of configuration management in place at Wallops. They felt that this would promote resolution of the problems.

Users complained about 300 bps parity errors. There was especially a problem since Wallops had no idea that such a large parity error problem existed. Users also complained about the lack of problem reporting procedures at Wallops. Kolleen Shelley suggested a bulletin board approach like the one that she uses on her web site. Users were saying that the 300 bps system (HDR) is not operational due to the large number of parity errors. Larry Cedrone was seeing many more parity errors than he used to see. Users suggested that a test plan for HDR be implemented. An estimate by one user is about 0.5% error rate, where he was not getting any at 100 bps.

V. Host Presentation – Mark Bushnell (NOAA/NOS/CO-OPS).

Mark Bushnell presented information on the Center for Operational Oceanographic Products and Services. His web sites can be found at <http://www.co-ops.nos.noaa.gov> and http://www.co-ops.nos.noaa.gov/d_ports.html. His group has installed monitoring stations at various sites around the Chesapeake Bay. They now have about 175 stations in operation. Storm surge monitoring systems using tide gauges are replacing manual observations. Great Lakes monitoring stations are used within the United States, in addition to the coastal regions. They are using some spread spectrum technology for local communications, but did not succeed in establishing a local Chesapeake Bay radio network.

V. User Reports

Highlights of user reports which were given by representatives of the attending agencies follow.

Ernest Dryer reported that the USGS is using Domsat with multiple LRGS stations for the USGS data retrieval and dissemination. They have established a network which is being used by other data users as a data source. He reemphasized the importance of the DCS to their mission, and what a disaster any data outage would be to the USGS. He is reliant on the 300 bps HDR technology. It was interesting to hear that the USGS is trending toward a binary data format for more efficient transfers. They now have about 150 high data rate (300 bps) DCPs deployed. He stated that the parity error problems with the 300 bps data are impacting the USGS functions.

Joe Medina reported for the California Department of Water Resources. They have about 200 DCPs and are ready to add another 50 DCPs as a backup to VHF radio systems that are being modified.

Peter Lessing of the NOAA/NWS/NDBC reported on the Marine observation network. There are 140 stations, with large data message sizes. There is an expansion of the Alaska buoy network underway. He also reported on the Coastal Storms Initiative. A voluntary observing network is being developed with privately owned boats that report meteorological and ocean measurements. Commercial fishermen are using the NDBC data for guidance. They are performing environmental testing on different manufacturers' HDR DCPs prior to installation in remote buoy platforms. The question of data compression was aired during this presentation. A standard data format would allow the application of a data compression technique which would go a long way to forestalling satellite saturation.

Janna Riedsel of the Colorado water resources reported that they have about 300 DCPs and are going to HDR. Their applications include flash flood warning, and draught monitoring. They have experienced only minor problems with the HDR service. Their DCPs are mostly on one channel. They are not having the HDR parity problems.

Steve Pritchett on NOAA/NEW/OCWWS reported on the COOP network. There are about 12000 coop stations for monitoring parameters such as precipitation, evaporation, and soil temperature. The data are currently being reported using a paper record. Their upgrade goal is to have hourly reporting at 8000 stations to improve forecasting. Better forecasting could save the energy industry a billion dollars per year. They want to have all of the COO stations reporting hourly. They are also looking for 8 to 10 million dollars from congress. They expect to have an RFP out this summer to begin purchase of the equipment. They are considering communication channels other than GOES. They plan to use 300 bps data rate. This is the voluntary observer network.

Larry Cedrone of the NOAA/NWS reported on Hydromet, and hydrological data utilization. Their primary mission is to translate the DCS data into an understandable format that will allow usage by those who need it. They furnish the data needed for

hydrological models. Future longer range prediction efforts are dependent on these DCP data. Larry has noticed a substantial increase in the amount of data with parity errors lately.

Jim Doty of the USBR reported on about 1500 DCPs that are monitored with their DRGS. He is receiving data with their DRGS that do not show the errors that data from Wallops has, and he has compared the data. He has made direct comparison of DCS data with that received from Wallops.

Charles Kazimir of the DOI/NIFC/BLM (Fire Center) reported on their work supporting disaster locations with their weather/environmental monitoring stations. They are waiting on their antenna installation for their new DRGS.

Dick Bahr of the National Park Service reported on radio equipped stations that are going to GOES to save money. Most of their stations are at remote sites that require extraordinary means like helicopters or horseback to reach them.

Ken Breiten of the U.S. Section of the International Boundary and Water Commission reported on stream gauges along the Rio Grande River and their work with Mexico. All of their DCPs are employing 300 bps systems.

Kolleen Shelly of the USDA Forrest Service reported on 1850 DCP stations that are supported. They have been involved with the Columbia space shuttle disaster site monitoring. She has an informative web site at <http://www.fs.fed.us/rawsnewsletter/featurearticles> .

Dave Wingerd of the USACE gave a review of the background of the Army Corps. Of Engineers work. They are using about 9000 gauges, and have about 3000 DCPs nationwide. They monitor parameters such as water level, temperature, wind, water quality, and PH. Ninety percent of their messages are 8 seconds or less based on studies that they have recently made.

The next TWG meeting was set for Denver, CO on June 25th and for June 24th for the STIWG. A third day, June 26th, may be added to allow DAPS II briefings.

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